

June 28, 2000

VIA COURIER

Magalie Roman Salas, Esq.
Secretary
Federal Communications Commission
445 Twelve Street, S.W., Room TWB204
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Re: Intersil Corporation
Ex Parte Filing
Amendment of Part 15 of the Commission's Rules Regarding Spread
Spectrum Devices, ET Docket No. 99-231

Dear Chairman Kennard:

Intersil has been an active participant in the Commission's controversial Wide Band Frequency Hopping (WBFH) proceeding. Intersil has previously taken a position on many important issues in this proceeding, but submits this *ex parte* filing to voice its strong opposition to an additional rule change that apparently is being contemplated by the Commission at the eleventh hour.

As explained below, the Commission should not adopt a specific change to its Frequency Hopping Spread Spectrum (FHSS) requirements that strikes at the heart of its spread spectrum rules, and the Notice of Proposed Rulemaking (NPRM) in this docket: the sharing of the 2.4 GHz ISM band by FHSS and direct sequence spread spectrum (DSSS) equipment. The public has not had adequate opportunity to comment on this specific change, and the Commission's adoption of this rule change is inappropriate and inconsistent with its obligations under the Administrative Procedures Act. In a March 23, 2000, *ex parte* filing, Proxim proposed specific language for the Commission's frequency hopping rules. That filing's proposed rule language stated, in passing, for the first time in this proceeding and without any technical support, that "*the total span of contiguous hopping channels shall be at least 75 MHz*" for frequency hopping devices operating in the 2.4 GHz ISM band. Intersil believes that the Commission may be considering adopting such a requirement in its decision in the above-referenced proceeding.

There was no mention of such a rule change in the Notice of Proposed Rulemaking (NPRM), presumably because such a rule change is not a component, essential or otherwise, of WBFH. In addition, adoption of such a new requirement would effectively nullify a specific

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provision in the current rules that helps ensure appropriate sharing of unlicensed spectrum. In fact, it can be shown that inclusion of this new requirement would ***force*** FHSS and direct sequence spread spectrum (DSSS) systems operating in the 2.4 GHz ISM band to collide more frequently than would otherwise be possible in the absence of such a requirement.

As described more fully below, Intersil strongly objects to inclusion of this requirement on both procedural and technical grounds. Prior to adopting such a rule, the Commission must provide adequate opportunity for public comment, and adoption of the rule should have adequate support in the record, be technically sound, and above all, be in the public interest. Intersil is extremely concerned that interested parties have not been afforded an opportunity to address this proposed rule change in this proceeding, and that the Commission may adopt this rule change without such input. Thus, Intersil urges the Commission to exclude this proposed rule revision prior to issuing its final decision in this docket.

Adoption of a 75 MHz Coverage Requirement Would Nullify Specific Provisions of the Current Frequency Hopping Rules Intended to Enhance Sharing of the 2.4 GHz Band

Under Section 15.247 of the Commission's Rules as currently written, there is no requirement that FHSS systems have either contiguous channels or that the total span of those channels cover any given amount of bandwidth. Regarding contiguous channels, Section 15.247 (a)(1) of the Commission's Rules states:

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

47 C.F.R. § 15.247(a)(1). Therefore, under current rules, FHSS channels cannot overlap, nor is there any requirement that these channels be contiguous. Further, there is no requirement regarding the total span of FHSS channels. Section 15.247(a)(1)(ii) of the Commission's Rules states:

Frequency hopping systems operating in the 2400-2483.5 MHz and 5725-5850 MHz bands shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

47 C.F.R. § 15.247(a)(1)(ii). Note that there is a *maximum* channel width, but *no* minimum channel width. Therefore, FHSS systems can actually occupy much less than a total of 75 MHz under current regulations, and a "full band coverage" requirement would represent a substantial departure from the current Commission rule.

The fact that the current FH rules do not contain a requirement specifying the use of 75 MHz coverage is most clearly understood in light of another portion of the Commission's FH Rules, Section 15.247(h), which states:

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted.

47 C.F.R. § 15.247(h). Because the 2.4 GHz band only permits practical use of approximately 79-80 MHz of spectrum (not including required guard bands), a requirement that at least 75 MHz be covered would completely nullify the ability of FH devices to adapt their hopsets to avoid other users of the band, eviscerating the intent of Section 15.247(h) of the Commission's Rules. The severe, practical impact of such a rule change is explained in greater detail in Exhibit A to this letter.

The Record Does Not Support a Rule Change Requiring 75 MHz FH Coverage

As described above, there is no requirement under current regulations that FHSS systems cover *any* minimum amount of spectrum. The reason is clear: such a requirement would nullify the effect of another portion of the Commission's FH Rules, Section 15.247(h), which was obviously intended to accommodate sharing of the 2.4 GHz band by differing technologies. Therefore, full band coverage would represent a new requirement for FHSS equipment, which was not contemplated in the NPRM in this proceeding. Likewise, this rule revision was never suggested or advocated by anyone until it was mentioned, *in passing*, in Proxim's short, March 23, 2000, *ex parte* filing. The first and foremost reason that this rule revision was not requested previously is that it is not a component (essential, or otherwise) of WBFH. Thus, the proposal to require 75 MHz or greater FH spectrum coverage is a separate concept raising distinct issues that should be accorded full and open airing before all interested parties.

If an adequate opportunity had been afforded for parties to comment on such a proposal, Intersil is confident that the Commission would have been persuaded that adoption of this measure would be against the public interest. This is particularly true in light of the fact that removing the 75 MHz requirement would in no way obstruct the implementation of WBFH, because it bears no relationship to WBFH's achievement of the data rates its proponents seek in this proceeding.

Conclusion

Intersil objects to the inclusion of a requirement that FHSS systems (regardless of the minimum number of hopping channels authorized) must cover at least 75 MHz of spectrum. These objections are based on both procedural and technical grounds. There is no similar requirement under current rules. Further, there has been absolutely no discussion of this requirement within the scope of the current proceeding, and as a consequence, the record is devoid of support for such a rule change beyond Proxim's March 23, 2000, *ex parte* filing (which contains absolutely no justification, technical or otherwise, for this requirement). Lastly, such a requirement bears no relationship, and therefore has no impact, on revisions to the Commission's Rules accommodating WBFH.

Intersil urges the Commission to drop this requirement prior to issuance of its final decision in this proceeding. To do otherwise would be technically unsound, unsupported by the record, and against the public interest.

Very truly yours,

Larry Ciaccia
Jim Zyren
Intersil Corporation
2401 Palm Bay Road
Palm Bay, FL 32903

cc: Commissioner Susan Ness
Mark Schneider, Senior Legal Advisor

Commissioner Harold Furchtgott-Roth
Bryan Tramont, Legal Advisor

Commissioner Michael K. Powell
Peter Tenhula, Senior Legal Advisor

Commissioner Gloria Tristani
Adam Krinsky, Legal Advisor

Dale Hatfield, Chief, OET
Julius Knapp, OET
Karen Rackley, OET

EXHIBIT A

The Practical, Detrimental Effects of a Proposed Rule Change to Require 75 MHz Coverage by FHSS Systems

Inclusion of a “75 MHz or more” coverage requirement in the Commission’s frequency hopping rules would have a severe adverse impact on future development of the 2.4 GHz ISM band. In the absence of such a new requirement, many types of FHSS radios, including Bluetooth devices, would have the flexibility under the Commission’s Rules to avoid colliding with other systems operating in the 2.4 GHz band. FHSS radios are explicitly permitted under the current rules to adapt their hopsets to avoid colliding with other users of the band, as stated in Section 15.247(h) of the Commission’s Rules:

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted.

47 C.F.R. § 15.247(h). If systems are required to cover 75 MHz of spectrum or more in the 2.4 GHz band, there is not enough room left over to avoid DSSS systems that occupy 20 MHz fixed channels (as shown in Figure 1):

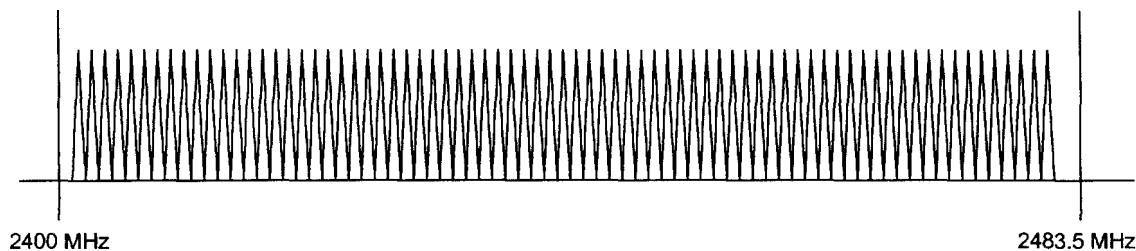


Figure 1 “75 MHz” Coverage Requirement Precludes Avoiding DSSS Radios

However, if the minimum number of channels is to be reduced to accommodate WBFH systems, the same measure would allow conventional FHSS systems such as Bluetooth ample opportunity to avoid colliding with Direct Sequence Spread Spectrum (DSSS) systems, which employ fixed channels as shown in Figure 2:

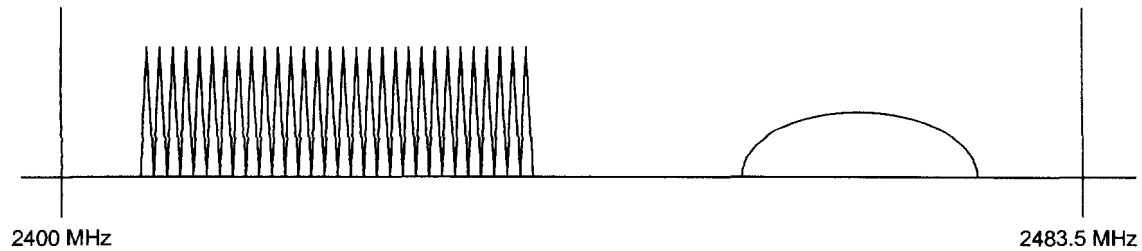


Figure 2 Dropping 75 MHz Coverage Requirement Permits FHSS and DSSS Coexistence

Thus, Section 15.247(h) has the beneficial effect of allowing DSSS and FHSS systems to coexist on a non-interfering basis—the basic intent of the spread spectrum Rules. Adoption of a rule change to require full occupation of 75 MHz of spectrum or more would contradict, and nullify, the current rules, which specifically accommodate adaptation of FH hopsets to facilitate the sharing of the band.